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THE NORTH CAROLINA SCHOOL
OF
SCIENCE AND MATHEMATICS

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COURSE CATALOG

COURSE DESCRIPTIONS **SPECIAL PROGRAMS**
STUDY OPTIONS **GRADUATION REQUIREMENTS**

1983-84

the north carolina school of science and mathematics

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INTRODUCTION

The course offerings described in the following pages have been developed for the 1983-1984 school year. They have been designed to provide both depth and breadth in the instructional program. Advanced studies are available in all the academic disciplines represented in the curriculum with particularly varied and challenging choices available in mathematics and the sciences. Every effort is made to accommodate individual interests, although final decisions on any year's course offerings are based on staff availability and satisfaction of minimum enrollment requirements.

The first consideration in building each student's course of study is to ensure a thorough grounding in mathematical, scientific, and communications skills and concepts. Students are urged to select an advanced sequence in at least one discipline and also to sample several other areas of study through choice of electives. The objective is for students to learn enough about a variety of academic disciplines, both within and without mathematics and the sciences, to become both informed decision makers and competent leaders in the complex technological world of the twenty-first century.

Each student has ample opportunity to discuss course choices with the instructors involved and with faculty/staff advisors, the Guidance staff, and the Registrar, who work together to ensure the appropriateness of each student's program. Consideration is given to the student's academic background, interests and ability, to personal growth and to issues of college admission. Each student's program must have the final approval of the Academic Dean. The Academic Office also serves as a resource to make special provisions for assistance to those students experiencing academic difficulty. In addition, all juniors are enrolled in a once-a-week "Introduction to Community Living" program, conducted by the Residential Life and Guidance Departments.

In order to address more fully the diverse needs, interests, and learning styles of a talented student population, the following credit-bearing study options are also provided. Independent Study Projects and Special Seminar Studies are developed directly with and approved by the faculty and staff involved. Individualized study of all courses is available, subject to consultation and agreement between instructor and student with subsequent authorization by the Academic Dean. Mentor placements with faculty or other professional personnel in neighboring universities, colleges, museums, institutes, laboratories, or industries are developed by and with the supervision of a school faculty or staff member.

The graduation requirements listed on the final pages specify that English and mathematics must be included in every student's program each year and that juniors must be enrolled in science and foreign language. American history and literature are also required in the junior year unless special conditions are met. Each student is required to be registered for a minimum of five courses per semester. This requirement not only will meet the educational goals of the North Carolina School of Science and Mathematics but also will prepare students for compliance with the new North Carolina Scholars Program, which will be implemented in the fall of 1983.

Grade reports are issued to students, parents, advisors, and counselors on a quarterly basis and include both a letter grade and a written evaluation. In addition, interim quarterly reports are sent when appropriate. The system of class rank is not used, since the school population is highly motivated and selected through a competitive admissions process. The following letter evaluation system is used and interpreted on school documentation:

A - Outstanding achievement
B - Superior, meets all course requirements
C - Acceptable, minimally meets course requirements
D - Unsatisfactory, no NCSSM credit
WP- Withdrawal passing
WF- Withdrawal failing

Provision is made for modifying a course schedule after the start of the academic year, but specific guidelines are established. In general, a student may drop a quarter course four weeks before the end of the quarter or drop a semester or full-year course four weeks before the end of a semester without a record of the course on the transcript. If a student withdraws from a semester or year course after the deadline has passed, the transcript will record the course and the withdrawal as passing or failing with no credit. Quarter courses earn one-quarter unit of credit, semester courses one-half unit of credit, and year courses one full unit of credit. Partial credit is not granted. Additional information on registration procedures is included in the Student Handbook.

COURSE DESCRIPTIONS

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Graduation Requirement in Mathematics

All students must successfully complete Precalculus, be enrolled in a mathematics course each semester and successfully complete one unit of mathematics each year. Students who have completed Geometry prior to entry must complete two units of mathematics. Geometry is taught as a directed and individualized course. The pace is determined by the student in consultation with the instructor. In previous years, students have completed the course in one to three semesters. Working by mail over the summer is also an option. Students who have not taken Geometry must complete three units of mathematics and one unit must be Geometry (MA105). Computer science courses do not fulfill any of these mathematics requirements. Students also must demonstrate computer competency.

Placement

Placement of juniors in the course best suited for them will be done by the Mathematics Department based on placement tests, previous background, and interview.

Placement of seniors is determined by the mathematics courses completed as a junior. The department understands there will be individual differences that need to be considered as students are placed in senior level courses.

Course Offerings

MA105 EUCLIDEAN GEOMETRY. One year (1 unit of credit).
This directed individualized study of Euclidean Geometry will cover a thorough treatment of parallel lines and planes, congruent and similar figures, right triangles and their properties, circles, areas, volumes, and constructions. Credit by examination is an option.

MA110 ALGEBRA 2/TRIGONOMETRY. One year (1 unit of credit).
Standard topics of Algebra 2 will be studied from an advanced viewpoint. The course will include: radicals, factoring polynomials, rational expressions, solutions of a wide variety of equations in one variable, introduction to functions (including logarithmic and trigonometric functions), linear and non-linear systems of equations, conics, and complex numbers. Emphasis is placed on problem solving, especially in the context of "word problems."

MA112 ALGEBRA 3. One year (1 unit of credit).
Prerequisite: Algebra 2
This junior level course reviews and extends the concepts of Algebra 2 through the study of the manipulation of expressions, equation solving, functions, graphing, conic sections, exponents, logarithms, complex numbers, systems of equations, matrices, sequences and series, and right triangle trigonometry. Placement in this course is made based on pretesting or recommendation of the teacher.

MA114 ALGEBRA 3/PRECALCULUS. Three semesters (2 units of credit).
Prerequisite: Algebra 2 and one semester of Precalculus
This course presents all topics of Precalculus (MA120) and selected topics of Introduction to College Mathematics (MA305). The course is initiated at the beginning of the second semester of the school year for selected juniors. Successful completion of this course will meet the mathematics requirement for graduation. Placement in this course is made by recommendation of the teacher.

MA115 ALGEBRA 2 AND PRECALCULUS. One year (1 unit of credit).
Topics of Algebra 2 and Precalculus will be covered. Students enrolled in this course have not previously taken Algebra 2. The presentation of topics will be fast paced and homework is extensive. Topics included are those of MA110 plus a thorough discussion of functions, locus of points, inequalities, polar coordinates, and vectors. Students successfully completing this course will select Calculus 1 or Calculus 1 and 2 as a senior. Placement in this course is determined by the Mathematics Department.

MA120 PRECALCULUS. One year (1 unit of credit).
Prerequisite: Algebra 2 or Algebra 3
An examination of elementary functions, including polynomial, rational, trigonometric, exponential and logarithmic functions will form the basis for this course. Other topics will include inequalities, locus of points, conic sections, limits, a thorough treatment of functions with an emphasis on graphing, complex numbers, polar coordinates, and vectors. As time permits, the course will include a short introduction to sequences and series and probability.

MA125 PRECALCULUS AND TOPICS. One year (1 unit of credit).
Prerequisite: Algebra 2
This course is a fast paced and more extensive study of the topics of MA120 and also will permit exposure to other selected topics. Placement in this course is determined by the Mathematics Department.

MA140 PROBABILITY AND STATISTICS. One semester (1/2 unit of credit).
Prerequisite: Algebra 2
Probability and statistics will be taught with an approach flexible enough to accommodate students with varying course preparation. Topics included are counting, conditional probability, random variables, functions of random variables, binomial distribution, sampling, and statistical tests.

MA215 INTRODUCTION TO LOGO *. One semester, two times a week (1/2 unit of credit).
Introduction to Logo is designed as a project-oriented course aimed at developing a procedural approach to problem solving. It will be taken in addition to the required mathematics course. The course is taught at a leisurely pace to ensure ample time for and experience in the analysis of the problem, developing procedures and subprocedures within a program to solve the problem, and debugging the program. The language Logo is learned as a by-product of such projects. This course is graded Satisfactory/Unsatisfactory and satisfies the computer competency requirement. No prerequisite.

MA220 INTRODUCTION TO PASCAL *. One semester, two times a week (1/2 unit of credit).
This is an introduction to computer programming with an emphasis on problem-solving, use of the computer as a tool, and creative aspects of programming. The computer language Pascal will be taught. Students will be introduced to VAX/VMS and the architecture of the VAX. The course is graded Satisfactory/Unsatisfactory and satisfies the computer competency requirement. No prerequisite, although most students will have taken a prior computer course.

* In both MA215 and MA220 programming assignments will require significant amounts of time outside of regular class meeting time.

MA305 INTRODUCTION TO COLLEGE MATHEMATICS. One year (1 unit of credit).
Prerequisite: Precalculus and permission of the Mathematics Department
This course provides further preparation for the study of Calculus through topics from a variety of areas of mathematics. Topics included are survey and review of elementary functions with a graphing approach, sequences and series, matrices and determinants, vectors, introductory probability and statistics, conceptual treatment of the application of mathematics to the sciences and social sciences, mathematical models, introductory Boolean algebra, and introductory number theory.

MA310 CALCULUS 1. One year (1 unit of credit).
Prerequisite: Precalculus
This course provides a rigorous introduction to college calculus. Topics included are limits, differentiation, integration, transcendental functions, curve sketching, physical applications, and methods of integration. Students may elect to take the Calculus AB Advanced Placement Examination.

MA315 CALCULUS 1 and 2. One year (1 unit of credit).
Prerequisite: A or B average in Precalculus
This course provides a rigorous study of two semesters of college calculus. Topics include all of those in MA310 and, in addition, indeterminate forms, improper integrals, polar coordinates, infinite series, and an introduction to ordinary differential equations. Students may elect to take the Calculus BC Advanced Placement Examination.

MA320 CALCULUS 1 AND 2 WITH TOPICS. One year (1 unit of credit).
Prerequisite: Permission of the Mathematics Department
This course is a faster paced and more in-depth study of the topics in MA315. Topics outside of the usual calculus curriculum will also be included. Students may elect to take the Calculus BC Advanced Placement Examination.

MA405 CALCULUS 3. One semester (1/2 unit of credit).
Prerequisite: Calculus 1 and 2
This is a course in calculus of several variables, including vector analysis, partial differentiation, multiple integrals, and line and surface integrals.

MA410 TOPICS IN DISCRETE MATHEMATICS. One semester (1/2 unit of credit).
Prerequisite: Calculus 3 or the permission of the Mathematics Department
The purpose of this course is to give advanced students an opportunity to study topics not usually offered in a high school curriculum. Topics will be included from the areas of combinatorics, linear algebra, and probability and statistics, with an emphasis on mathematical models and algorithms. Students are expected to do extensive independent work and give presentations to the class.

The department will offer a series of short courses during the course of the year. These courses may be taken for no credit or as a part of a program of independent study. Expected topics include the use of a data management system, number theory, statistical packages on computers, and logic.

DEPARTMENT OF SCIENCES

The aim of the Department of Sciences at the North Carolina School of Science and Mathematics is to give all students an introduction to each of the basic sciences and to allow them to pursue their particular interests by taking elective courses in areas of their choice. To meet graduation requirements in science, a student must complete three units of science while in residence at the North Carolina School of Science and Mathematics and show competence in each of the three sciences, either by passing an introductory course or by taking a test to place out of the first course. Note that when a student places out of a course he/she must still complete three units of science credit by adding either an advanced course or other science electives.

Each of the sciences will have standardized tests available at the beginning of the year to let students place out of the introductory courses. By taking a test a student will be able either to advance immediately to a higher level course in this area or to spend the time in other science courses which might be of more interest.

Biology

To meet graduation requirements, a student must:

1. place out of biology by an exemption exam given at the beginning of the fall semester each year OR

2. take Series I or Series IV for a year OR

3. take a combination of any four courses from Series I and Series II as long as they include classes in at least three of the areas A-D OR

4. take a combination of any three courses from Series I and Series II as long as they include classes in at least two of the areas A-D PLUS take one Series III course.

Placement

All incoming students will be given a placement exam in the spring to determine from which of the options they may choose. A student who needs to take another year of general biology to strengthen overall understanding of the discipline will be required to take all four Series I courses. If the placement exam discloses weaknesses just in certain fields, the student will be required to take the Series I courses just in those areas; he/she will be allowed to choose remaining courses from Series II and Series III offerings as long as the requirements are met. A student who does sufficiently well on the placement exam and meets other prerequisites may opt for one of the Series III courses.

Scheduling

Each student may take biology courses during the junior or senior year or may spread them out over the two years. A student who completes the biology requirement may take more biology courses as electives. The Series I courses will be offered every year in the order indicated. However, the offering of other courses will depend on the availability of faculty and on student enrollment; students should keep this in mind in planning which classes they will take each year.

Exemption

A test to determine which students may place out of biology completely will be administered at the beginning of each year after the students arrive for the fall semester. A student who plans to take biology during the junior year if he/she does not pass the exemption test should pre-register for the biology courses of choice; these may be dropped if the student makes a passing score on the exam. Students who place out of biology through the exemption exam are still required to take three units of science at the North Carolina School of Science and Mathematics. Please note that the exemption exam is not the same as the placement test.

Summary of Biology Curriculum

Series I. Introductory. (1/4 unit of credit each).

A	B	C	D
The Chemical Basis of Biological Systems	Biological Form and Function	Biological Continuity and Change	Biological Relationships in Time and Space

Series II. Advanced. (1/4 unit of credit).

A	B	C	D
Biochemistry	Vertebrate Anatomy	Genetics	Taxonomy
Molecular Biology	Vertebrate Physiology	Embryology	Animal Behavior
Cell Biology	Botany	Evolution	Ecology
Microbiology	Biophysics		Field Biology
			Invertebrate Zoology

Series III. Lecture Course, no laboratory, variable credit. (1/4 or 1/2 unit of credit. See Course Descriptions).

Review of Biological Principles
History of Biology
Topics in Human Biology
How Do We Know?
Bioethics
Human Sexuality
Population, Resources, and Environment

Series IV. Laboratory-oriented courses. (1 full unit of credit).

Laboratory Experiments in Biology: A Do-It-Yourself AP Biology Course
Independent Research in Biology

Course Offerings

Series I

Series I courses are all basic, introductory courses; each covers a major area within the biological sciences. The entire series is required of those students who need another year of general biology to strengthen their overall understanding of the discipline. Individual Series I courses are required of students who have specific gaps in their background.

These courses will be offered in order during the year: The Chemical Basis of Biological Systems will be taught first quarter, Biological Form and Function will be taught second quarter, and so on.

BI101 THE CHEMICAL BASIS OF BIOLOGICAL SYSTEMS. One quarter (1/4 unit of credit); offered first quarter only.
An introduction to cell structure and function, including cellular organelles and their roles, models of the cell membrane, mitosis and meiosis, respiration, protein synthesis, control of gene expression, regulation of reactions, and hypotheses of cellular evolution.

BI102 BIOLOGICAL FORM AND FUNCTION. One quarter (1/4 unit of credit); offered second quarter only.
An introduction to the anatomy and physiology of living things, with emphasis on the multicellular organisms. Coverage of major organ systems of both plants and animals and the functions of those systems.

BI103 BIOLOGICAL CONTINUITY AND CHANGE. One quarter (1/4 unit of credit); offered third quarter only.
An introduction to genetics (including Mendelian and molecular genetics, human genetics, and genetic diseases), embryology, and evolution (including Darwinism, population genetics, and modern evolutionary theory).

BI104 BIOLOGICAL RELATIONSHIPS IN TIME AND SPACE. One quarter (1/4 unit of credit); offered fourth quarter only.
An introduction to the phylogenetic relationships between living things and to the functional relationships between organisms, both within a species and between species. Coverage of taxonomy, animal behavior, population and systems ecology.

Series II

Series II courses are more advanced than Series I courses. They are open to students who have demonstrated through the placement exam that they have a solid background in certain areas of biology. For example, a student who demonstrates by performance on the exam a basic understanding of the chemical aspects of biology will be allowed to take courses from group A of Series II.

BI201 BIOCHEMISTRY. One quarter (1/4 unit of credit).
Mechanisms and regulation of reactions in living organisms with emphasis on general principles. Protein structure and enzyme function; central pathways in intermediary metabolism; metabolic control.

BI202 MOLECULAR BIOLOGY. One quarter (1/4 unit of credit).
Mechanisms of replication, transcription, and translation of genetic material in prokaryotic and eukaryotic systems; gene sequence, organization, and expression.

BI203 CELL BIOLOGY. One quarter (1/4 unit of credit).
Fundamentals of cell structure and activity in relation to special cell functions, metabolism, reproduction, and embryogenesis with an introduction to the experimental analysis of cell physiology and development.

BI204 MICROBIOLOGY. One quarter (1/4 unit of credit).
Structure and function of viruses, bacteria, and single-celled eukaryotes, including algae, fungi, and protozoans. Biochemical and genetic composition, taxonomy, and identification techniques.

BI211 VERTEBRATE ANATOMY. One quarter (1/4 unit of credit).
Vertebrate comparative anatomy of organ systems and their evolution, with emphasis on mammalian anatomy. History of vertebrates, including phylogenetic reconstruction and evolution of vertebrate organ systems.

BI212 VERTEBRATE PHYSIOLOGY. One quarter (1/4 unit of credit).
Structure and function of the major organ systems with an emphasis on system integration and body homeostasis. Primary concentration on mammalian systems.

BI213 BOTANY. One quarter (1/4 unit of credit).
Introductory coverage of plants, including classification, structure, physiology, reproduction, heredity, and environmental relationships.

BI214 BIOPHYSICS A. One semester (1/2 unit of credit; 1/4 each in biology and physics). Note that a student may take both BI214 and BI215, but no more than 1/4 unit of credit from these two courses may be applied to the biology requirement.
The physical bases underlying biological processes, including the forces, energetics, and control systems involved in the physiological functioning of the body.

BI215 BIOPHYSICS B. One semester (1/2 unit of credit; 1/4 each in biology and physics). (Note that a student may take both BI214 and BI215, but no more than 1/4 unit of credit from these two courses may be applied to the biology requirement.)
(See above description)

BI221 GENETICS. One quarter (1/4 unit of credit).
Mendelian genetics and principles of inheritance. Molecular genetics, including replication, transcription, translation,and control of gene expression. Human genetics, genetic diseases,and genetic engineering.

BI222 EMBRYOLOGY. One quarter (1/4 unit of credit).
Principles of development with emphasis on gametogenesis, fertilization, cleavage, germ layer formation, organogenesis, and mechanisms of control.

BI223 EVOLUTION. One quarter (1/4 unit of credit).
A survey of evolutionary ideas and an in-depth look at modern evolutionary theory, origin and diversity of animal life, evidences for organic evolution; the debate over mechanisms.

BI231 TAXONOMY. One quarter (1/4 unit of credit).
Survey of viruses, protista, fungi, animalia, and plantae. Basic taxonomy, key anatomical characteristics, phylogenetic relationships,and interesting and relevant aspects of each group.

BI232 ANIMAL BEHAVIOR. One quarter (1/4 unit of credit).
An introduction to animal behavior, including the ontogeny, ecology, physiology, and evolution of behavior.

BI233 ECOLOGY. One quarter (1/4 unit of credit).
Principles governing the ecology and evolution of populations, communities, and ecosystem structure and dynamics.

BI234 FIELD BIOLOGY. One quarter (1/4 unit of credit); offered fourth quarter only.
Introduction to natural history with study of habitats, behavior, and distribution of organisms. Emphasis on terrestrial systems. Coverage of plants, fungi, amphibians, reptiles, birds, mammals, and terrestrial arthropods.

BI235 INVERTEBRATE ZOOLOGY. One quarter (1/4 unit of credit).
Survey of the non-vertebrate animals, including taxonomy, anatomy, physiology, and ecology. Emphasis on key traits and identification. Coverage of terrestrial, marine, and fresh-water forms.

Series III

Series III courses are all lecture classes without labs. An eligible student may receive one quarter of his/her biology credit by taking a Series III course. Extra Series III courses may be taken as electives.

BI301 REVIEW OF BIOLOGICAL PRINCIPLES. One quarter (1/4 unit of credit); offered third quarter only.
Prerequisite: Permission of the instructor
Coverage of all major topics in modern biology with emphasis on common themes and unifying theories. Biochemical reactions, cell structure and function, anatomy and physiology of plants and animals, genetics, embryology, evolution, ecology, behavior, and taxonomy. Suitable as a review for the Advanced Placement Examination.

BI302 HISTORY OF BIOLOGY. One quarter (1/4 unit of credit).
A look at changing views about living things from Aristotle to modern day scientists. Emphasis on key figures, pivotal discoveries, parallel development of the sciences,and ties to political, economic, and social change.

BI303 TOPICS IN HUMAN BIOLOGY. One quarter (1/4 unit of credit).
Discussion of various aspects of human existence from the biological perspective. Nutrition, food additives, sexuality, birth control, drugs, medicines, aging, radiation, toxic chemicals, and other topics.

BI304 HOW DO WE KNOW? One quarter (1/4 unit of credit).
A course on the experimental basis of biological knowledge. Review of classic as well as less known studies which provided understanding of biological phenomena.

BI305 BIOETHICS. One semester (1/2 unit of credit; 1/4 each in biology and social science).
Consideration of ethical questions arising from discoveries of modern biology. Genetic counseling, genetic engineering, in vitro fertilization, medical research, transplants, euthanasia, and other issues.

BI306 HUMAN SEXUALITY. One semester (1/2 unit of credit; 1/4 unit of credit each in biology and social science).
This team-taught interdisciplinary course will integrate a number of basic biology and social science concepts. Students will not only understand their own sexuality but also explore the ways in which cultures both determine and reflect the differences in male and female roles.

BI307 POPULATION, RESOURCES, AND ENVIRONMENT. One semester (1/2 unit of credit; 1/4 each in biology and social science).
An examination of population growth, resource, depletion, and environmental degradation as three interrelated, exponential processes influencing the next several decades of human existence. The course covers both scientific data and political, economic, and philosophical implications. Readings are in Global 2000 Report, Limits to Growth, Toward a Steady-State Economy, and other relevant books. Emphasis is on alternative futures and the role of the individual in developing solutions.

Series IV

All Series IV classes are year-long courses of independent study in biology. The number of Series IV classes offered will depend on availability of faculty and demand by students. To be considered for a Series IV course, a student first must demonstrate a firm foundation in biology through a strong performance on the biology placement exam. Each Series IV class has other prerequisites, which are specified below. These courses are meant for students who are mature, reliable, and able to stay with a task until it is completed.

BI405 INDEPENDENT RESEARCH IN BIOLOGY.
Prerequisite: Adequate score on the biology placement examination and/or permission of the instructor
Qualified juniors are encouraged to take this course; it is also open to eligible seniors. This is a one-year course designed to allow students to pursue individual research problems in biology. Early in the course students will be taught to use library resources in finding scientific information. Based on material acquired from reading, each student will design a research project concerned with a topic in one of these general areas -- molecular, cellular, or behavioral biology.

During the first semester the student also will receive closely supervised training in techniques commonly used in research in his/her chosen area. Application of these techniques to various types of research questions will be emphasized as will laboratory safety and proper experimental design.

During the remainder of the year, each student will work on an individual research problem under the supervision of the instructor. Students will be encouraged to enter their projects in regional and national research competitions.

BI410 LABORATORY EXPERIMENTS IN BIOLOGY: A DO-IT-YOURSELF AP BIOLOGY COURSE.
Prerequisite: Adequate score on the biology placement examination and/or 1 year of high school chemistry; permission of the instructor
This course is most suitable for seniors. Laboratory experiments performed by the students will be the major emphasis. Students will be expected to acquire a thorough knowledge of basic biological concepts through their independent study of the textbook. Minimum class time will be spent on teacher lectures.

Students will examine factors that should be included in good experimental design. Many open-ended experiments will be performed to give experience in hypothesizing, setting up equipment (and sometimes constructing it), collecting data, and drawing conclusions from the data. Students may use this class to prepare for the Advanced Placement Biology Examination. There will be a strict schedule of reading assignments, study guides from the teacher, and frequent tests.

Chemistry

The graduation requirement in chemistry can be fulfilled by:

1. taking General Chemistry, General Chemistry with Topics, General Advanced Chemistry, Fundamentals of Chemistry, or Advanced Chemistry, OR

2. a passing score on the American Chemical Society High School Chemistry Standardized Examination and the recommendation of the North Carolina School of Science and Mathematics Chemistry faculty.

Course Offerings

CH101 FUNDAMENTALS OF CHEMISTRY. One year (1 unit of credit).
This course is designed to help students who have not yet developed the quantitative or abstract reasoning skills required for success in General Chemistry. Topics covered will be similar to those covered in General Chemistry, but emphasis will be placed on developing problem solving skills. Students will be placed into this course on the basis of placement tests given during orientation week or by recommendation of the Chemistry faculty.

CH105 GENERAL CHEMISTRY. One year (1 unit of credit).
This course is a survey of introductory topics. The classroom time is devoted to development of insight into the modern theories of chemistry. These include atomic theory, chemical bonding, molecular structure, chemical thermodynamics, kinetic theory, and equilibria. Recommended for 11th grade students who have not completed a similar course.

CH110 GENERAL CHEMISTRY WITH TOPICS. One year (1 unit of credit).
Corequisite: Algebra 2/Precalculus or higher mathematics
This course will cover the same topics as CH105 but students should expect to move at a faster pace and in more depth in many areas. An advanced text is used and students can prepare for the Advanced Placement Examination if they wish.

CH205 ADVANCED CHEMISTRY. One year (1 unit of credit).
Prerequisite: Acceptable score on a chemistry placement test or permission of the instructor
Students will use an advanced text. The class will be conducted with emphasis on personal study. Programmable calculators will be used to find exact solutions to some problems that have been traditionally solved by approximate methods. Chemical equilibrium will be covered in much more detail than in the first year classes as will electrochemistry, nuclear chemistry, and chemical thermodynamics. This course will prepare students to take Advanced Placement Examinations if they wish.

CH305 ORGANIC CHEMISTRY. One year (1 unit of credit).
Prerequisite: General Chemistry (at North Carolina School of Science and Mathematics) or permission of instructor
This course introduces the topics of organic chemistry and has emphasis on experimentation. Instrumentation such as gas chromatography and infrared spectroscopy will be used. Topics of biochemistry are also discussed second semester.

CH310 CHEMICAL INSTRUMENTATION. One semester (1/2 unit of credit), or one year (1 unit of credit).
Prerequisite: General Chemistry
Co-requisite: Algebra 2/Precalculus or Precalculus
This course is designed (1) to make students familiar with the theory and operation of a variety of types of chemical instrumentation commonly used in modern laboratories and (2) to help students develop the ability to design and carry out their own research projects. Students will be introduced to the theory and operation of each type of instrument and then will design an experiment which uses the instrument. First semester will be devoted to many aspects of chromatography and second semester to electrochemistry and spectroscopy. Students may register for either semester or both.

Physics

The graduation requirement in physics can be satisfied by:

1. successful completion of Survey of Physics or Introductory Physics with Calculus OR

2. a passing score on a proficiency examination given at the beginning of the fall semester each year and approval by NCSSM Physics faculty.

Course Offerings

PH105 SURVEY OF PHYSICS. One year (1 unit of credit).
Co-requisite: Algebra 2/Precalculus or higher mathematics
This course lays a sound, algebra-based foundation in the principles of classical physics and is strongly recommended for juniors who have not taken physics previously. The first semester covers the laws of mechanics (including the study of linear and rotational motion, gravity, forces, momentum, and energy) and their applications (fluids, heat, and thermodynamics). The second semester covers wave motion (including sound, light, color, and optics) and the laws of electricity and magnetism. Throughout both semesters, topics in modern physics (e.g., special and general relativity and quantum physics) are included where appropriate. (In 1984-85 this course will be a prerequisite for calculus-based physics. See below.)

PH110 INTRODUCTORY PHYSICS WITH CALCULUS. One year (1 unit of credit).
Co-requisite: Calculus
This course covers the topics of PH105 with a more mathematical emphasis. (In 1984-1985 this course will become Advanced Physics, requiring PH105 as a prerequisite.)

PH115 APPLIED ELECTRONICS. One semester (1/2 unit of credit).
Emphasis will be on the practical application of electronics. One semester minimum length with independent work to be arranged beyond one semester to advance as far as desired. The course will start with basic electronic circuits and will use solderless breadboards to build and use these circuits.

PH120 ASTRONOMY. One semester (1/2 unit of credit).
Co-requisite: PH105 or 110; Algebra 2/Precalculus or higher mathematics
This course covers the entire universe from the solar system to the Big Bang. It concentrates on the structure and evolution of stars, galaxies, and planetary systems and on the methods and tools that astronomers use to study these objects. The course includes topics related to current astronomical research such as the search for Black Holes, the missing solar neutrinos, the first few minutes of the universe, and the Voyager spacecraft's study of Jupiter and Saturn and their satellites. A telescope is available for nightly astronomical viewing.

PH130 ENERGY. One semester (1/2 unit of credit).
This course will cover a wide range of topics concerned with energy production, storage, distribution, and efficient use. The school's energy utilization will serve as an introduction to the larger issues of national and world-wide energy consumption.

PH135 THE SEARCH FOR EXTRATERRESTRIAL LIFE AND INTELLIGENCE. One semester (1/2 unit of credit).
Co-requisite: Algebra 2/Precalculus or higher mathematics
An interdisciplinary investigation of the possible existence and nature of extraterrestrial life and intelligence. The course covers in detail the origin and nature of life on earth and extrapolates from knowledge of the requirements for "life as we know it" to various other astronomical settings. The course concludes with speculation on the social, political,and religious among other structures of an advanced extraterrestrial society.

PH205 TOPICS IN MODERN PHYSICS. One semester (1/2 unit of credit).
Prerequisite: PH105 or 110
Co-requisite: Calculus
Topics will be selected from special relativity, particle wave duality, atomic structure, quantum mechanics, statistical mechanics, solid state, nuclear structure, and elementary particles. The course will require extensive outside reading.

Note: See also the course description in Biology of BI214A Biophysics, which grants credit in physics

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

The course offerings in the Department of Humanities and Social Sciences attempt to sharpen the students' decision-making and communications skills, enlarge the students' understanding of their own culture and other cultures, and increase their appreciation of major art forms in an intellectual and applied context. The Department offers each student an opportunity to select from a wide variety of required and elective courses. If a student has an exceptionally strong background in one of the junior year requirements, he or she should contact the Department head upon arrival on campus and appropriate testing for placement purposes will be arranged.

Art

Note: Enrollment in any of the offerings below is limited to 12 students.

Course Offerings

AR105 ART OVERVIEW. One semester (1/2 unit of credit).
Designed to provide students who have not taken an art course at the North Carolina School of Science and Mathematics, regardless of experience, with exposure to a wide variety of art skills, including line drawing, calligraphy, printmaking, and photography.

AR110 BEGINNING PHOTOGRAPHY. One semester (1/2 unit of credit).
Designed for a beginner or a student with moderate experience in photography. The course will include lectures on the art of taking a good picture, film and paper chemistry, camera optics, camera operation, exposure calculations, film developing, and darkroom printing techniques. The course will conclude with independent student work.

AR210 ADVANCED PHOTOGRAPHY. One semester (1/2 unit of credit).
Prerequisite: Prior photography experience
Designed to provide the experienced photographer with advanced darkroom, studio, and "in-the-field" skills. Color photography is introduced. Class begins with formal instruction and evolves toward independent student work.

AR115 MECHANICAL DRAWING. One semester (1/2 unit of credit).
A course for students with moderate or no experience in technical drawing. The course will cover fundamentals of engineering and architectural drawing, utilizing a variety of technical drawing tools.

AR215 ADVANCED MECHANICAL DRAWING. One semester (1/2 unit of credit).
Prerequisite: AR115
Designed to let beginning Mechanical Drawing students continue on more advanced work, emphasizing product design, assembly drawing, and exploded views. Architectural drafting will be introduced with emphasis on floor plans, site plans, elevations, perspective drawing, exterior and interior building details, and the development of a personal lettering style. The final project will be an original design of a building, space, or functional object complete with all drawings necessary for its construction.

AR120 LINE DRAWING. One semester (1/2 unit of credit).
Teaches art fundamentals such as composition, shading, texture, and value by using pencil and pen and ink. The course will utilize studio still-life drawing, outdoor mini-field trips, and commercial art fundamentals.

AR125 PRINTMAKING. One semester 1/2 unit of credit).
Exposes students to a variety of printmaking techniques, including collographs, linoleum block printing, silk screen printing, and etching. Students pursue a project in each printing medium.

AR130 CERAMICS. One semester (1/2 unit of credit).
Designed for beginning through advanced students. This course teaches basics of handbuilding and wheelthrowing earthenware and stoneware clays and includes glaze composition and kiln firing.

English

Senior English: Each student is required to earn 1/2 credit in English during each semester of his or her senior year. In at least one of these semesters he or she must be enrolled in a literature course. Additional courses beyond the two semester requirements may be taken as electives.

Junior English: Juniors are required to enroll in the American Literature/ Communications course. Students who have had an American literature course previously should notify the English faculty so that alternative placement may be considered.

Course Offerings

EN105 AMERICAN LITERATURE/COMMUNICATIONS. One year (1 unit of credit).
This course provides students with the opportunity to develop thinking and writing skills while studying major works of American Literature. Literary study focuses on the uniquely American characteristics of these works, their larger thematic implications, and their artistic merit. Communication skills are developed through study of the rhetoric of both verbal and non-verbal forms of communication.

EN205 ENGLISH LITERATURE. One semester (1/2 unit of credit); or one year (1 unit of credit).
A survey of the literature of England from Beowulf to the present. Special attention will be given to such major writers as Chaucer, Shakespeare, Swift, and others and to such movements as Romantic and Modern poetry. Students will continue to develop and practice composition and rhetoric skills, introduced in the junior year, through various analytical, expository, appreciative, and creative assignments.

EN210 THIRD WORLD LITERATURE. One semester (1/2 unit of credit).
This course will examine representative poetry, plays, short stories, and novels written by authors from African, Arab, Asian, and South American heritages. Specific area emphasis will vary each semester. Students will explore the universal elements of such works. They will also discover the unique cultural and anthropological frames of reference contained in the literature.

EN110 ADVANCED WRITING. One semester (1/2 unit of credit).
In this course students will study examples of expository, argumentative, technical, and creative writing. Students will be expected to produce work in several of these types. Students will be encouraged to do additional work in those areas which most interest them.

EN115 DRAMA. One semester (1/2 unit of credit).
Plays will be read and discussed and some attention will be given to the history of drama as an art form, but the major emphasis of this course will be production - how plays are produced. Students will be required to participate in off-stage and on-stage production activities. Elective credit only; does not fulfill English graduation requirement.

EN305 WISDOM, REVELATION, REASON, AND DOUBT. Interdisciplinary 2-semester 2-credit course for seniors (1 unit of English credit; 1 unit of social science credit).
This course integrates the study of highlights from cultural and social history; science and technology; literature and drama; art, architecture and sculpture; music;and philosophy into general and specific perspectives on the development of the intellectual and cultural heritage of the western world. Students will read, analyze, and discuss literary and historical material; view and discuss paintings and sculpture; visit galleries and museums in the Triangle area; attend concerts, dramatic performances, and film-showings as well as express their impressions and studies in various composition forms throughout the term.

Foreign Languages

Every student must enroll in a foreign language during the junior year. Students who (1) can prove competency by testing at the completion level of the third year of a foreign language or (2) speak English as a second language may consult the coordinator of foreign languages for a modification of this requirement.

Course Offerings

FR105 FRENCH 1. One year (1 unit of credit).
Emphasis in this course is placed on the acquisition of basic language skills: speaking, listening, comprehension, reading, and writing. The student acquires a base vocabulary and learns the simple grammatical constructions needed for essential communication. Cultural aspects of the people are also introduced.

FR205 FRENCH 2. One year (1 unit of credit).
While emphasis on basic language skills is continued, the student's competency in the language is further increased by (1) reading short texts, (2) oral discussion of material read by the class, (3) greater use of the language in everyday conversational situations, and (4) creative expression which may take the form of written compositions, oral reports, and short skits. Most of the grammatical constructions are learned.

FR305 FRENCH 3. One year (1 unit of credit).
Continues development of skills in oral, written, and aural French. The fine points of grammar, complex verb tenses, and idiomatic expressions are treated in depth, with emphasis on using these structures in composition and conversation. A variety of literary excerpts are read and combined with culture units on French-speaking countries. Students may elect an optional unit in scientific and technical French.

FR405 FRENCH 4. One year (1 unit of credit).
This course examines an extensive list of sixteenth through twentieth century French literary masterpieces in a variety of genres. Students are expected to acquire skills in French literary analysis, discussion, and composition. Students are eligible but not required to take the Advanced Placement French Literature Examination in May.

RU105 RUSSIAN I. One year (1 unit of credit).
An introduction to the Russian language with emphasis on conversation, reading, writing, and acquisition of the basic grammatical constructions.

RU205 RUSSIAN 2. One year (1 unit of credit).
Continued acquisition of the basic grammatical elements of the language with increased emphasis on vocabulary building and oral self-expression. Filmstrips are used for cultural enrichment and aural comprehension. Computers are available for grammatical drill.

SP105 SPANISH 1. One year (1 unit of credit).
Emphasis in this course is placed on the acquisition of basic language skills: speaking, listening, comprehension, reading, and writing. The student acquires a base vocabulary and learns the simple grammatical constructions needed for essential communication. Cultural aspects of the people are also introduced.

SP205 SPANISH 2. One year (1 unit of credit).
While emphasis on basic skills is continued, the student's competency in the language is further increased by (1) reading short texts, (2) greater use of the language in everyday conversational situations, (3) oral discussion of material read by the class, and (4) creative expression which may take the form of written compositions, oral reports, and short skits. Most of the grammatical constructions are learned.

SP305 SPANISH 3. One year (1 unit of credit).
In this course reading selections of increasing difficulty from literature and culture form the basis for study and discussion by the class. The more complex grammatical constructions of the language are studied and reviewed. Filmstrips are used as a vehicle for cultural enrichment, vocabulary building, and grammar review. Oral and written reports are also used as a means of sharpening the student's skills in the language.

LA105 LATIN 1. One year (1 unit of credit).
Mastery of essentials of Latin grammar, with particular emphasis on English derivatives and vocabulary building. Attention is also given to development of translation skills.

LA205 LATIN 2. One year (1 unit of credit).
Review and further study of the essentials of Latin grammar. Increased emphasis on reading and translation of ancient authors. Cultural aspects of the Greek and Roman worlds are also introduced. Continued stress on English vocabulary development and stylistics.

LA305 LATIN 3. One year (1 unit of credit).
Emphasis is on readings of classical authors and their cultural environment. Introduction to supplementary areas in the field of classical studies (religion, art,and history, among others). Continuing development of prose composition skills and vocabulary building.

GE105 GERMAN 1. One year (1 unit of credit).
Emphasis in this course is placed on the acquisition of basic language skills: speaking, listening, comprehension, reading, and writing. The student acquires a base vocabulary and learns the simple grammatical constructions needed for essential communication. Cultural aspects of the people are also introduced.

GE205 GERMAN 2. One year (1 unit of credit).
Emphasis on basic language skills begun in German 1 is continued. The student's competency in the language is further increased by the reading and discussion of short texts. The more complex grammatical constructions are learned and practiced. Filmstrips are used for cultural and vocabulary enrichment.

History and Social Sciences

Junior requirement:

Each junior is required to complete two semesters in Advanced American Studies for 1 full unit of graduation credit. The student may select from the following options:

1. elect SS105 for a full year

2. elect either SS106 OR SS107 in Semester 1
and
either SS108 OR SS109 in Semester 2

These courses are described below. Each of the courses contains a Strategies in Learning component, which is designed to enhance students' ability to communicate in various forms. Emphasis will be placed on research, writing, reading, oral, visual, map, computer, and decision-making skills.

Course Offerings

SS105 AMERICAN SOCIETY: HISTORY AND CULTURE. One year (1 unit of credit).
This interdisciplinary course will trace the development of the United States from 1607 until the present in chronological sequence. Emphasis will be placed on social, intellectual, political, economic, and cultural trends.

SS106 ARMS AND AMBASSADORS: DIPLOMACY AND ITS FAILURES. Semester 1 (1/2 unit of credit).
The focus of this course is on an examination of America through her foreign policy and the wars in which she has been involved. Since foreign policy is but a reflection of domestic moods, attention will be given to internal developments and technological advances.

SS107 ANGER AND ACTION: REFORM MOVEMENTS IN AMERICAN HISTORY. Semester 1 (1/2 unit of credit).
The focus of this course is on an examination of the expectation of Americans as they dealt with changes that could alter their lives. Since America came about as a result of a series of reform movements, much of its history can be told in terms of thwarted or realized expectations that resulted in further agitation for or against reform.

SS108 "TELLING LIVES": HISTORY AS BIOGRAPHY. Semester 2 (1/2 unit of credit).
This course, using an interdisciplinary approach, will take an in-depth look at critical periods of American life through an examination of the lives of politicians, scientists, artists, musicians, writers, economists, statesmen, and military figures.

SS109 "WORDS OF DESTINY": HISTORY AS ITS OWN INTERPRETER. Semester 2 (1/2 unit of credit).
This course through a careful examination of selected documents, diaries, and other published works leads to the exploration of various themes in American history from an interdisciplinary perspective: technological advances, scientific developments, artistic growth, intellectual changes, political ideals, social prospects and/or economic practices.

SS205 ECONOMICS: MONEY, MANAGEMENT, AND MARKETS. One semester (1/2 unit of credit).
This introductory course in economics provides students a significant opportunity to apply the techniques and learnings of mathematics and science to social problems. The course is a study of theories and institutions that organize and direct the economic activities of mankind. It is designed to help the student understand basic economics and the problems on which he or she will have to pass judgment today and tomorrow.

SS210 THE BLACK PEOPLE: AFRICA TO THE AMERICAS. One semester (1/2 unit of credit).
The roots, development, problems, group consciousness, and dreams of the Blacks in the Americas will be studied. Special attention will be given to the present day status of Blacks and directions for the future.

SS215 WORLD RELIGIONS IN PERSPECTIVE. One quarter (1/4 unit of credit).
A comparative and critical study of the major religions of the world with special attention to their social significance and impact on modern world thought will be the focus of this course.

SS220 CONTEMPORARY AMERICAN POLITICS. One quarter 1/4 unit of credit).
This course stresses the role and impact of various political groups, the media, and the world situation on traditional institutions and practices in American political life today.

SS225 SCIENCE AND SOCIETY THROUGH THE AGES. One quarter (1/4 unit of credit). This course will trace the basic development in scientific thought from the earliest time to the present. Beginning with "magic" as mankind attempts to deal with the mysteries of the universe, the course will proceed to discuss major scientific thinkers and inventors. Emphasis will be placed on the societal context in which these developments occurred.

SS230 SELF AND SOCIETY. One semester (1/2 unit of credit). This introductory course will deal with man as an individual and as a member of society. Combining both psychology and sociology, emphasis will be placed on such areas as the development of personality, abnormal behavior, intellect vs. intelligence, socialization, social systems, and social interaction.

SS310 HISTORY OF WESTERN PHILOSOPHY. One semester (1/2 unit of credit). This course will trace the history of western philosophy from the Pre-Socratics through twentieth century analytic philosophy. Special attention will be given to such figures as Plato, Aristotle, St. Augustine, Duns Scotus, Descartes, Kant, Hegel, Moore, Russell, and Wittgenstein. Emphasis will be placed on epistemological and ontological issues.

See also the following courses which grant credit in social sciences:

BI305 BIOETHICS. One semester (1/2 unit of credit; 1/4 each in biology and social science). See course description in Biology.

BI306 HUMAN SEXUALITY. One semester (1/2 unit of credit; 1/4 each in biology and social science). See course description in Biology.

BI307 POPULATION, RESOURCES, AND ENVIRONMENT. One semester (1/2 unit of credit; 1/4 each in biology and social science). See course description in Biology.

EN305 WISDOM, REVELATION, REASON, AND DOUBT. 2-semester, 2-credit course for seniors. (2 units of credit; 1 each in English and social science). See course description in English.

Music

Course Offerings

MU105 CHORUS
MU110 WIND ENSEMBLE
MU115 STRING ENSEMBLE. One semester (1/2 unit of credit); or one year (1 unit of credit).
Prerequisites: MU110 and 115 - Several years of previous experience on an instrument or permission of the instructor. MU105 - No previous experience required
These three ensemble courses offer the opportunity to study music through the medium of performance. Performance is seen not as an end in itself but as a means of approaching important ideas in music as found in repertoire of a variety of historical periods and styles, beginning with the more familiar and moving to the more adventuresome and challenging. In addition to full-ensemble repertoire, works for smaller sub-groups (brass choir, Madrigal Singers, string quartet, woodwind quintet, among others) are studied and performed. Additional time is devoted to technical expertise, basic music skills, and literacy in

musical notation and historical styles, all seen as means toward the creation of intelligent, informed performances.

MU125 SOUNDS: A WORKSHOP IN MUSICAL PERCEPTION. One semester (1/2 unit of credit).
Study and production of sonic events with emphasis on twentieth century and electronic music. Topics may include: music in nature (bird-song, bio-music, ambient sound); acoustics (wave-motion, overtone series); silence; music and mathematics (fibonacci series, set theory) and any others deemed appropriate. Class will study and realize some pre-existent music, but the emphasis will be on making our own sounds through group compositions, improvisation, and North Carolina School of Science and Mathematics' Electronic Music Laboratory. No musical experience necessary.

MU130 ELECTRONIC MUSIC LABORATORY. One semester (1/2 unit of credit).
Electronic Music is music made up of electronically synthesized sounds and/or electronically altered "natural" sounds. This course will be centered around student compositional exercises and a final large composition using North Carolina School of Science and Mathematics' Electronic Music Laboratory. Techniques and processes to be learned include synthesizer and tape techniques and basic composition skills. Pre-existing electronic music will be examined and used as a springboard for discussion for a number of topics including the following: the relationship between technology and art; logic and/or communication in sound; and the ethical (is electronic music de-humanizing?) and aesthetic implications of electronic music. No previous experience in music is required.

MU205 ADVANCED MUSIC THEORY. One year (1 unit of credit).
Prerequisite: Working knowledge of standard music notation
The study of music as systematic thought. The course will embody practical theory (harmony, counterpoint, form, instrumentation, and aural skills) and speculative theory (what makes a musical system? What makes a piece work or not work?). We will center on two pre-existing musical systems: tonality and serialism. Students will learn to study and write in both systems. At the end of the year we will attempt to create another system.

Physical Activity And Wellness

Course Offering

PA105 PHYSICAL ACTIVITY FOR JUNIORS. Required of juniors for graduation. One year (1/2 unit of credit).
Designed to encourage and promote lifestyles based on the importance of wellness through vigorous activities and good health habits. Topics shall include but not be restricted to the following: health risks and their relationship to the quality of life, physical activity and weight control, cardio-respiratory conditioning, lifetime sports and functional anatomy and kinesology, modern dance and martial arts.

DEPARTMENT OF GUIDANCE

Course Offering

INTRODUCTION TO COMMUNITY LIVING. One semester (No academic credit).
A course required of all juniors during first semester. Students meet in small groups once a week to explore and discuss issues contained within the lifestyle at the School. Small group discussions, field trips, roleplaying and video resources are utilized.

DEPARTMENT OF MEDIA SERVICES

Extensive library and media facilities are available to student and faculty at the North Carolina School of Science and Mathematics. On-campus print and media collections are fortified by material available through interlibrary loans from area universities and North Carolina State libraries. Opportunities are provided to explore and use a wide variety of communications and information research tools, ranging from film and video to microfilms and computer-based information services. Students have opportunities for Work Service placement as library or media production aides.

STUDY OPTIONS AND SPECIAL PROGRAMS

Independent Study

Prerequisite: Approval of sponsoring members of the faculty and Dean of Academic Affairs. Available in all disciplines. Length of program at discretion of instructor
Independent Study is available to any student who wishes to explore a topic or area of interest not offered in the curriculum. The student and the instructor together will design the program of study and determine the number and frequency of meetings and the amount of credit to be earned.

Individualized Study

Prerequisite: Approval of course instructor and Dean of Academic Affairs
Individualized Study is a contract between student and teacher which allows a student to move at his own pace and style through a course offered in the regular curriculum.

Mentor Guided Research and Study

Students spend three to five hours per week assisting professional researchers in Triangle area universities, institutions and industries in the following fields: mathematics, science, engineering, architecture and medicine. Pairing of researchers and students is arranged by a faculty coordinator who also monitors the plan and objectives of the student's participation. A periodic evaluation is completed jointly by the mentor, the student, and the faculty coordinator.

Special Seminars

Prerequisite: Approval by Special Seminars Committee and Academic Dean
A limited number of teams of three or four students will be authorized to develop, with faculty and staff guidance, seminar investigations in various subjects or combinations of subjects. In these seminars the content, the method of learning, and the resources used will be largely determined by the student team. The nature and amount of credit will vary.

RESIDENTIAL LIFE PROGRAMS

Community Service

As a requirement for graduation, students must successfully complete the appropriate number of hours required for the Community Service option they select. This program provides an opportunity for a student to be of service to a community while learning about community life, the working world and themselves. Juniors have various options to choose from to complete this program.

Work Service

As a requirement for graduation, students must successfully complete eight quarters of Work Service or quarter equivalents as determined by the Work Service supervisor. Each student is expected to be cooperatively involved in one of many work service duties for four hours each week. Contributions of time and energy provide not only a financial benefit to the School and ultimately the students but also permit a sense of communal involvement which creates a bond between those participating and their environment.

MINIMUM GRADUATION REQUIREMENTS

Subject	Credits Earned at Previous School	Additional Credits Required by NCSSM	Total Number of Credits Required
English	2	2	4
Mathematics	2	2	4
Science	1	3	4
Social Science	1	1	2
Foreign Languages	0	2	2
or	1	1	2
or	2	1	3
Physical Activity and Wellness	1	0.5	1.5
Electives	1	1.5	2.5
TOTAL	8	12	20

Satisfactory participation as indicated by a report grade of "S" in Community Service and Work Service, a passing score on the annual statewide competency test, and demonstration of computer literacy are other requirements for graduation.

In addition to satisfactory completion of the above requirements, students are expected to exhibit responsible behavior towards other students, the school, the community and the State as a condition of continuing enrollment and graduation.

Opportunities to develop and demonstrate responsible behavior are an integral part of the living/learning concept through work service, community service, and various residential life and independent study programs.

Students who do not meet standards of behavior as determined by the administration of the school or specifically stated in the Student Handbook may be required, after due process, to withdraw from the school. In such cases a diploma from the school will not be awarded to the student.

Special Notice

This catalog lists all of those courses which the School is prepared to offer. Inasmuch as the total enrollment of the School is relatively small, it may not be possible to offer all courses every year. If the enrollment for a given course does not meet the minimum number required to justify the expense of faculty time, the course may be cancelled. In planning their course selections for elective courses students should be prepared to consider alternative courses if their first choice is not available.